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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/595,195	09/29/2006	Masahiko Ishida	09780001AA	4374

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EXAMINER
HOU, MICHELLE M

ART UNIT	PAPER NUMBER
1793	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/595,195	ISHIDA ET AL.	
	Examiner	Art Unit	
	MICHELLE HOU	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *4/14/09*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) *18-23* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17,24 and 25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

1. The amendment filed on April 14, 2009 under 37 CFR 1.312 has been entered.

DETAILED ACTION

Status of Application

5. Claims 1-17, 24-25 are pending and are presented for examination. 18-23 claims are cancelled.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-17, 24, 25 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is no support for the formation of the nanotubes. Applicant has not demonstrated the mechanism, how the catalyst moves or how it converts the carbon in its wake. There are no examples of the actual formation. Since nanotubes are known to require a vaporized carbon source, the burden is upon applicant to show that a heretofore unknown mechanism can make nanotubes. There is no evidence on the record of nanotube formation, and the current state of the art suggests that none will occur. The drawings are only speculative.

Claim Rejections - 35 USC § 102

4. Claims 1,2,10 are rejected under 35 U.S.C. 102(b) as being anticipated by Uemura (US6239547 B1).

Regarding applicant's claim 1 and 10, Uemura disclose according to an aspect of the present invention, the electron emitting source is made of carbon nanotubes formed from a columnar graphite layer. The carbon nanotubes may be formed from a multilayer graphite column whose tip is open. The electron emitting source is constituted by fixing the carbon nanotubes to the substrate with a conductive adhesive. The catalyst melting conductive adhesive is a silver paste (Uemura, col.2, line 48-52 and58-60, col.5, line 42-43).

Regarding applicant's claim 2, Uemura discloses a method for producing a carbon nanotube wherein a crystalline region is performed when needle like structure is made of carbon nanotube and a pattern of this paste is formed on the substrate (Uemura, col.3, line 6-8).

Claim Rejections - 35 USC § 103

7. Claims 1, 2, 5, 6, 10, 13, 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uemura (US6239547 B1) in view of Fujita 2001 American Vacuum Society, Dec2001 "Observation and characteristics…CVD".

Regarding applicant claim 5,6,13,14, Uemura however does not disclose a nanostructure formed by CVD.

Fujita does however disclose the nanostructure formed by CVD (Fujita, page 1).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention filed to take Uemura's teaching in view of Fujita to arrive at the same invention of instant applicant claims because Fujita clearly suggested the deficiency of Uemura's teaching.

One would have been motivated to make such modification because the said modification provides process benefits because Kops demonstrated nanoscale structure 3D (like aromatic hydrocarbon compound) construction using carbon deposition applied to a microvacuum tube. Gradual position scanning of the ion beam during the CVD process causes the position of the preferential growth region around the beam point to shift (Fujita, page 1).

9. Claim 1-4, 8-10 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uemura (US6239547 B1) as applied above and further in view of Ota (US 20050245390 A1).

Regarding applicant claim 3, Uemura however does not disclose when the carbon structure is heated when the catalyst is in the carbon structure.

Ota does however disclose the carbon structure heated to 2000C when the catalyst is in the carbon structure (Ota, p.1, col.2, [0015]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention filed to take Uemura's teaching in view of Ota to arrive at the same invention of instant applicant claims because Ota clearly suggested the deficiency of Uemura's teaching.

One would have been motivated to make such modification because the said modification provides process benefits because the process efficiency of the vapor grown carbon fiber subjected to a thermal treatment at a temperature of 2000C enables the production method for the catalyst carrier. (Ota, p.1, col.2, [0015]).

Regarding applicant's claim 4, Ota discloses catalyst metal is performed by a liquid phase (heating) reduction method (Ota, p.1, col.2, [0014]).

Regarding applicant's claim 8, Ota discloses the carbon structure linear structure length and said catalyst carrier moving (crushing) along carbon structure (Ota, p.1, col.2, [0009]).

Regarding applicant's claim 9, Takai discloses the catalyst particle diameter is 3 times large as the length of the diameter of the linear structure (Takai, p.1, col.2, [0017]).

Regarding applicant's claim 17, Ota discloses a method of producing a wiring (fiber) structure of carbon nanotube (Ota, p.1, col.2, [0011]-[0013]).

10. Claim 1, 2, 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uemura (US6239547 B1) as applied above and further in view of Ota (US 20050245390 A1).

Regarding applicant claim 11, Uemura however does not disclose when the carbon structure is heated when the catalyst is in the carbon structure.

Ota does however disclose the carbon structure heated to 2000C when the catalyst is in the carbon structure (Ota, p.1, col.2, [0015]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention filed to take Uemura's teaching in view of Ota to arrive at the same invention of instant applicant claims because Ota clearly suggested the deficiency of Uemura's teaching.

One would have been motivated to make such modification because the said modification provides process benefits because the process efficiency of the vapor grown carbon fiber subjected to a thermal treatment at a temperature of 2000C enables the production method for the catalyst carrier. (Ota, p.1, col.2, [0015]).

Regarding applicant's claim 12, Ota discloses the catalyst is liquefied said carbon structure (Ota, p.1, col.2, [0014]).

Response to Arguments

11. Applicant's arguments filed April 14, 2009 have been fully considered but they are not persuasive:

a. To address applicant's statement that carbon nanotubes need to be produced not premade, the Uemura reference was added to claims 1,2,5,6,10,13,and 14.

b. With regard to the applicant's statement that carbon nanotubes or the catalyst is not produced, this is false as paragraph [0007] of the Ota reference states "the present invention provides a catalyst carrier, a production method and an application thereof". Paragraph [0013], [0014], [0015], and [0016], describe the production method temperature to produce carbon nanotubes and catalyst.

Conclusion

12. Claims 1-17, 24, 25 are rejected. Claims 18-23 are cancelled.

Correspondence

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHELLE HOU whose telephone number is (571)270-5847. The examiner can normally be reached on Monday to Friday, 8AM EST to 5PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vickie Kim can be reached on (571)272-0579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

M.H.

/Stuart Hendrickson/

Primary Examiner, Art Unit 1793